Two New Species of *Armadilloniscus* (Isopoda: Oniscidea: Scyphacidae) from Northern Queensland

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(Communicated by N. N. TAIT)

LEWIS, F. Two new species of *Armadilloniscus* (Isopoda: Oniscidea: Scyphacidae) from northern Queensland. *Proc. Linn. Soc. N.S.W.* 113 (2), 1992: 151-155.

Two species of *Armadilloniscus* have been collected from two Queensland beaches. They differ from other species in ornamentation and, in spite of the sexual dimorphism characteristic of this genus, they are considered to be from different species and are described as *Armadilloniscus binodulus* sp. nov. from Karumba and *Armadilloniscus ornatocephalus* sp. nov. from Cardwell.

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INTRODUCTION

The Scyphacidae has representatives in both hemispheres and is one of the five supralittoral families recorded from Australia (Green, 1966; Vandel, 1973; Lewis and Bishop, 1990), where it is represented by *Deto* and *Alloniscus* (Vandel, 1973), two of the seven described genera. Two species of *Armadilloniscus*, are now described from Queensland.

There have been many changes in the taxonomic position of *Armadilloniscus* since its creation by Uljanin in 1875. The genus was placed in a new subfamily Armadilloniscinae of the Oniscidae by Verhoeff (1916). Then Blake (1930) moved the Armadilloniscinae to the Scyphacidae (Chilton, 1901), distinct from other scyphacid genera which he placed in Scyphacinae. Vandel (1962) listed *Armadilloniscus* in Scyphacinae; however, Menzies (1950), Schultz (1972) and Green (1989, pers. comm.) include *Armadilloniscus* as one of the genera of Scyphacidae — a family with no subfamilies.

Diagnoses of *Armadilloniscus* have been written by both Arcangeli (1957) and Vandel (1962). *Armadilloniscus* is separated from the other genera by the flattened and expanded uropod bases (protopods), with the rami extending to or slightly beyond the body margin (Schultz, 1972).

Sexual dimorphism is common in, if not characteristic of, this genus (Taiti and Ferrara, 1989). Females are larger and in some cases have different, or simply more distinct, tubercular ornamentation than males. The tergal ornamentation provides the best criterion for distinguishing species (Vandel, 1970).

An unidentified species of *Armadilloniscus* has been collected from two islands of the Furneaux Group, Tasmania, but is different in ornamentation from the species described here, and can enroll, although imperfectly (Green, 1988, pers. comm.). Neither of the two new species appears able to enroll although other species have been described as enrolling (Blake, 1930; Schultz, 1972).

Only one specimen of each new species was found — a male of one and a female of the other. Their main distinction is in the eyes, 3 ommatidia in one and 7 in the other. In none of the species described by Taiti and Ferrara (1989) was any disparity in numbers of ommatidia noted between the sexes of the same species; so the Queensland specimens are considered to be from different species.

SYSTEMATIC DESCRIPTIONS

Armadilloniscus binodulus sp. nov.
(Figs 1a-1b)

Holotype: Male, Australian Museum, Sydney (P39140).
Type Locality: Karumba, (Gulf of Carpentaria), Queensland, 17°29′S, 140°50′E. under compacted shell blocks on beach, August 1988, F. Lewis.
Size: 6 mm long and 3 mm broad. **Cephalon** (Fig. 1**a**) lateral lobes subquadrangular, median lobe triangular; 2 slightly raised elongated tubercles running forwards from just anterior and medial to the eye, to behind the medial cephalic lobe; small pointed tubercle anterior to each eye and close to corresponding lateral lobe; eye of 3 ommatidia in line. **Second antenna** (Fig. 1**a**) 4 articled flagellum terminates in tuft of setae. **Pereon** (Figs. 1**a**, 1**b**) tergites each with 3 pairs elongated dorsal tubercles medial to epimera. **Pereopods** large spine on distal end of carpus, dactylar organ present on all. **Pleon** (Fig. 1**b**) second segment extended laterally into 2 large, round tubercles, 2 small tubercles, on each side of midline on each of segments 2-5; telson trapezoidal with slightly concave lateral margins, 2 small medial tubercles, slightly curved posterior border. **Pleopod 1** endopod angled sharply at tip. **Uropod** (Fig. 1**b**) protopod broad, flat, longer than dorsally inserted exopod. The tergite area is flattened with the epimera angled sharply downwards.

Armadilloniscus ornatocephalus sp. nov.
(Figs 2**a**-2**b**)

Holotype: Female, Australian Museum, Sydney (P39141).
Type Locality: Cardwell beach, east Queensland coast, 18°10′S, 146°01′E, under debris along high water mark, August 1988, F. Lewis.
Size: 3 mm long and 1.5 mm broad. **Cephalon** (Fig. 2**a**) 3 lobed, median lobe triangular, lateral lobes subquadrangular; eye of 7 ocelli in 2 rows; 4 rectangular tubercles in semi-circle on vertex, 2 small tubercles posterior to median lobe, 2 more on midline posterior to semi-circular ornamentation. **Second antenna** (Fig. 2**a**) 4 articled flagellum terminating in tuft of sensory setae; peduncle joints with thick fringe of setae anteriorly. **Pereon** (Figs 2**a**, 2**b**) segments 1-6 each with small median tubercle near anterior border which decreases in size posteriorly and is absent on segment 7; lateral to this is one elongated tubercle on segments 1-5 and 2 small tubercles on segments 6-7; lateral to each tergite are small and elongated tubercles, 4 on segment 1 and 3 on segments 2-7. **Pereopods** all have large spine on distal end of carpus; propodus of pereopod 1 has long spine at each end; all have dactylar organ. **Pleon** (Fig. 2**b**) 2 small paramedial tubercles on each segment, segment 2 with 2 lateral tubercles; telson trapezoidal, lateral margins slightly convex. **Uropod** (Fig. 2**b**) protopod flat, expanded, curving inwards; long exopod attached dorsally in concavity near medial margin. The tergite area is flattened with epimera angled sharply downwards.

DISCUSSION

A. binodulus might be expected to be most similar to species from the Indian and Pacific oceans (Taiti and Ferrara, 1989) or Japan (Nunomura, 1984). It differs however, from *Armadilloniscus amakusaensis* (Nunomura, 1984) in the cephalon tubercles and from the other four Japanese species by the trapezoidal telson. It also differs in many characteristics from the six new Indian and Pacific Ocean species (Taiti and Ferrara, 1989). *A. binodulus* is similar to *Armadilloniscus quadricornis* from the Solomon Islands in having the exopod shorter than the protopod, but differs in (1) the absence of a central boss on

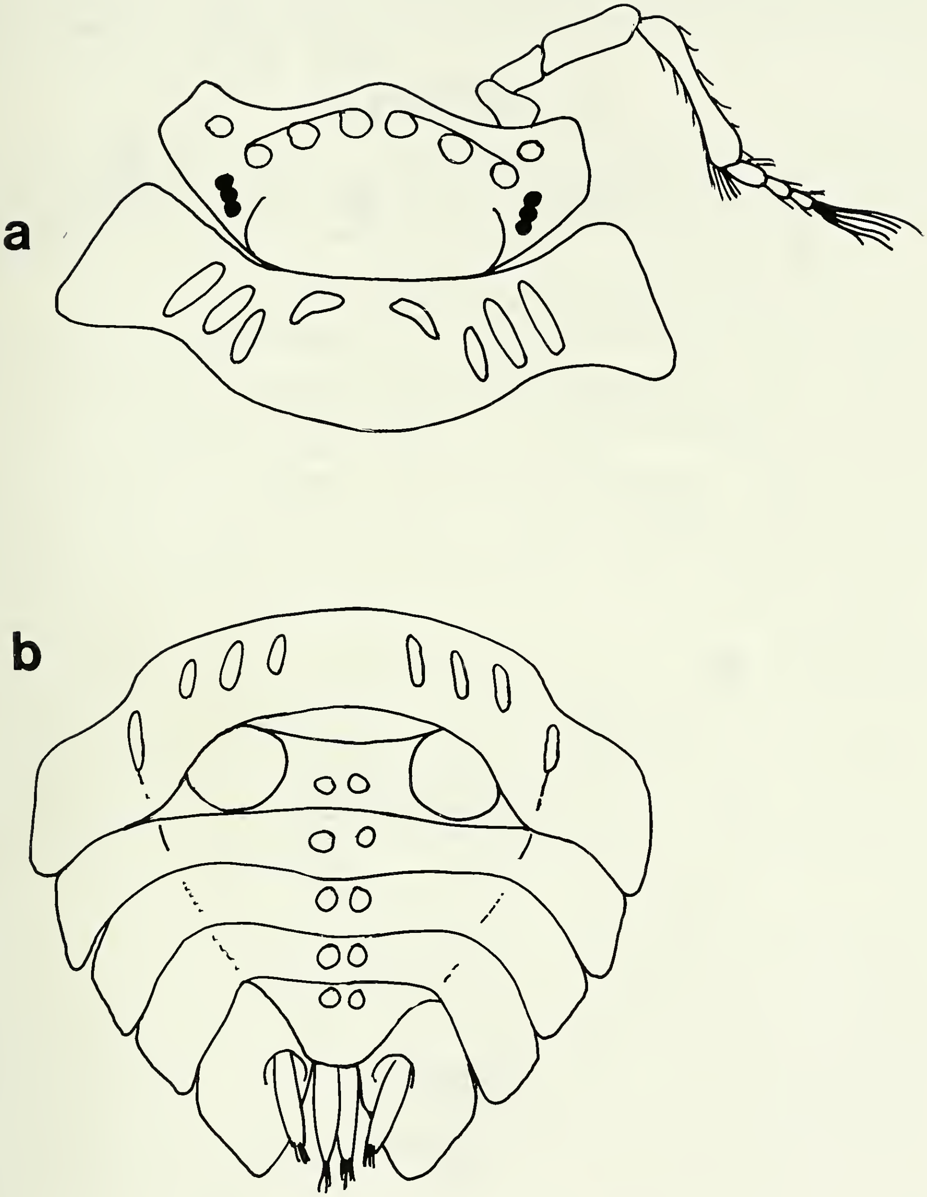

Fig. 1. Armadilloniscus binodulus Holotype male: **a**, cephalon and pereonite 1; **b**, pereonite 7 and pleon.

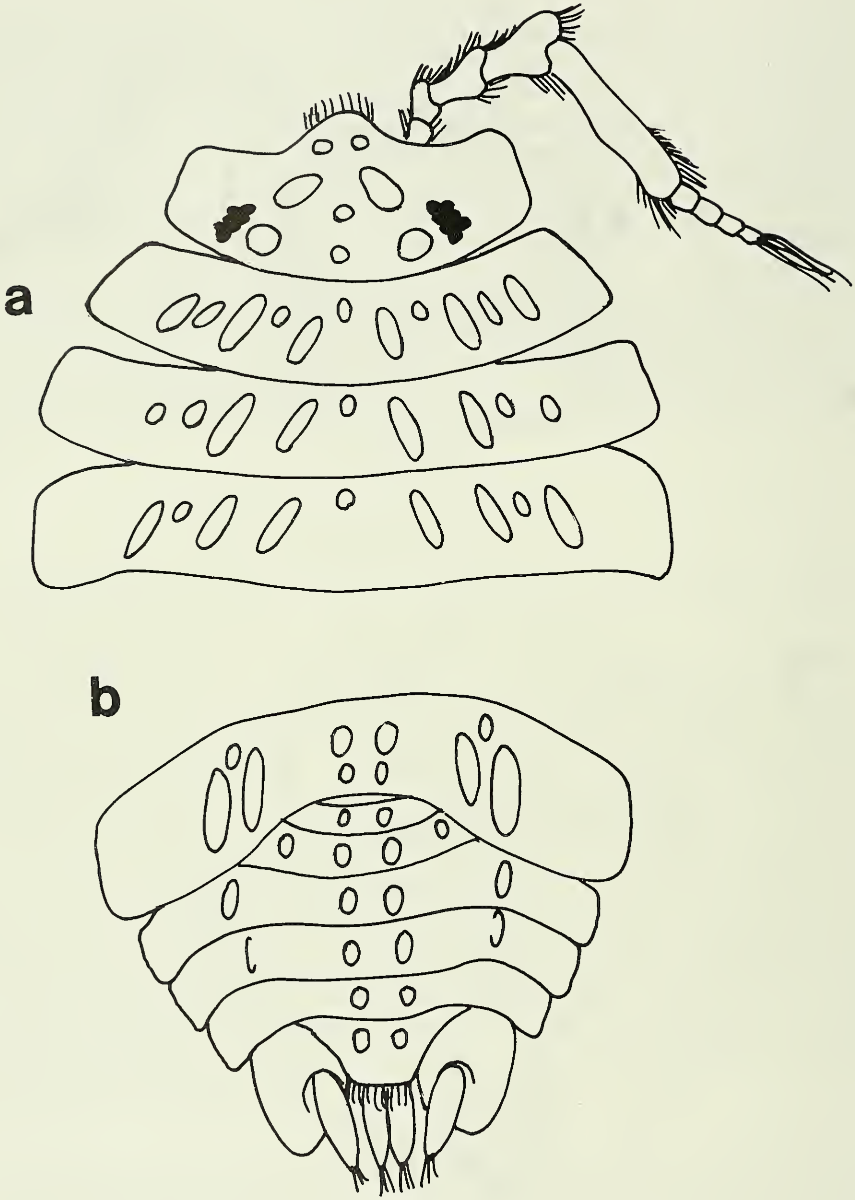

Fig. 2. Armadilloniscus ornatocephalus Holotype female: **a**, cephalon and pereonites 1-3; **b**, pereonite 7 and pleon.

pereonite 1; (2) the absence of tubercles on pleonite 1; (3) the presence of only 3 ommatidia while *A. quadricornis* has 4-5.

Armadilloniscus ornatocephalus differs from the Japanese species in the same features as *A. binodulus*. It is similar to *A. quadricornis* in the presence of a central boss on pereonite 1 and the 2 tubercles on pleonite 1 but differs in (1) the greater number of ommatidia; (2) the exopod being longer than the protopod and (3) the presence of a thick fringe of setae on the joints of the peduncle.

ACKNOWLEDGEMENTS

I wish to thank those of my colleagues who read and commented on this paper, Alison Green of the Tasmanian Museum for help with identification, Sue Doyle for help with SEM and Jenny Norman for photography of figures. This is publication number 108 of the Research Unit for Biodiversity and Bioresources, Macquarie University.

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